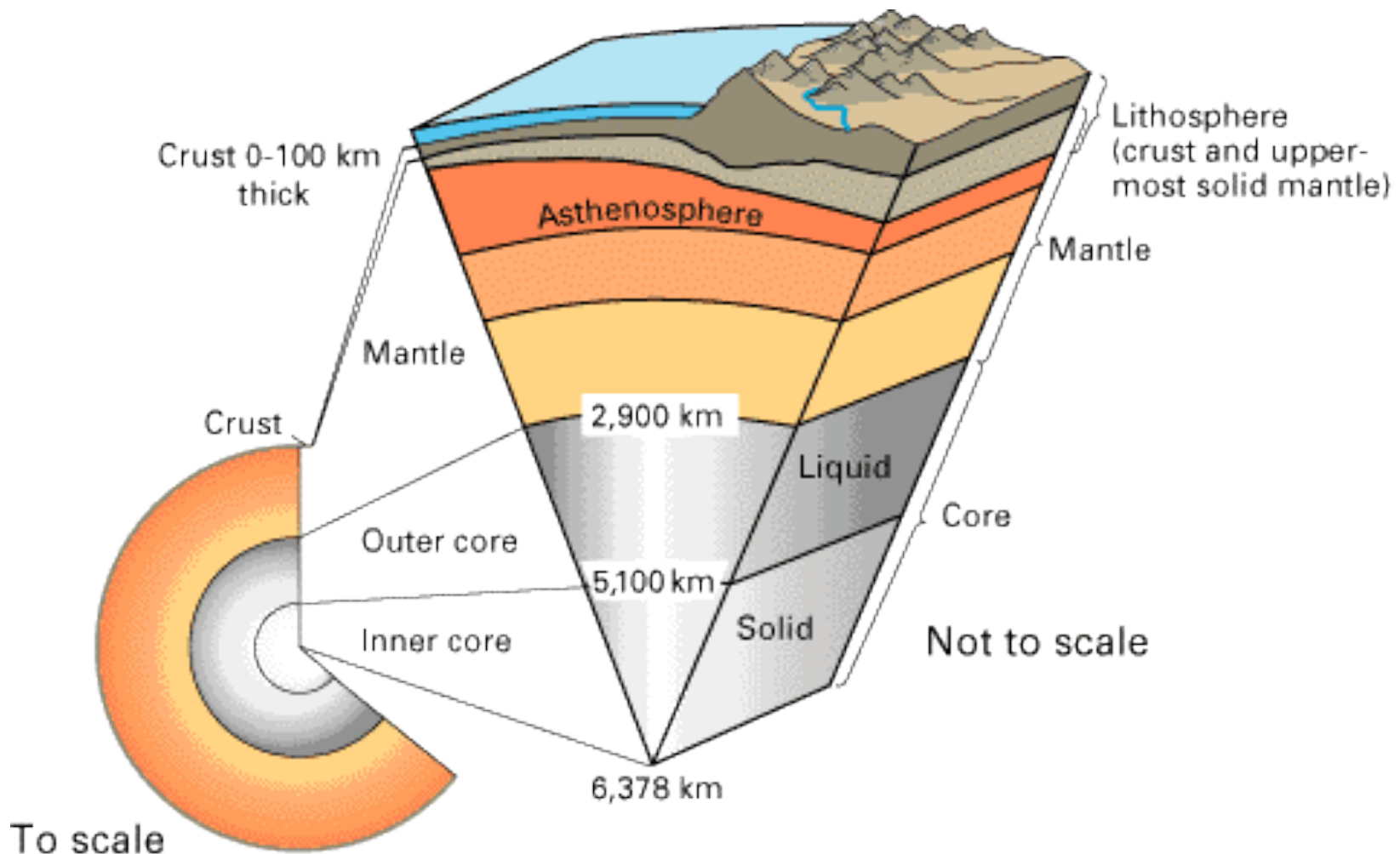
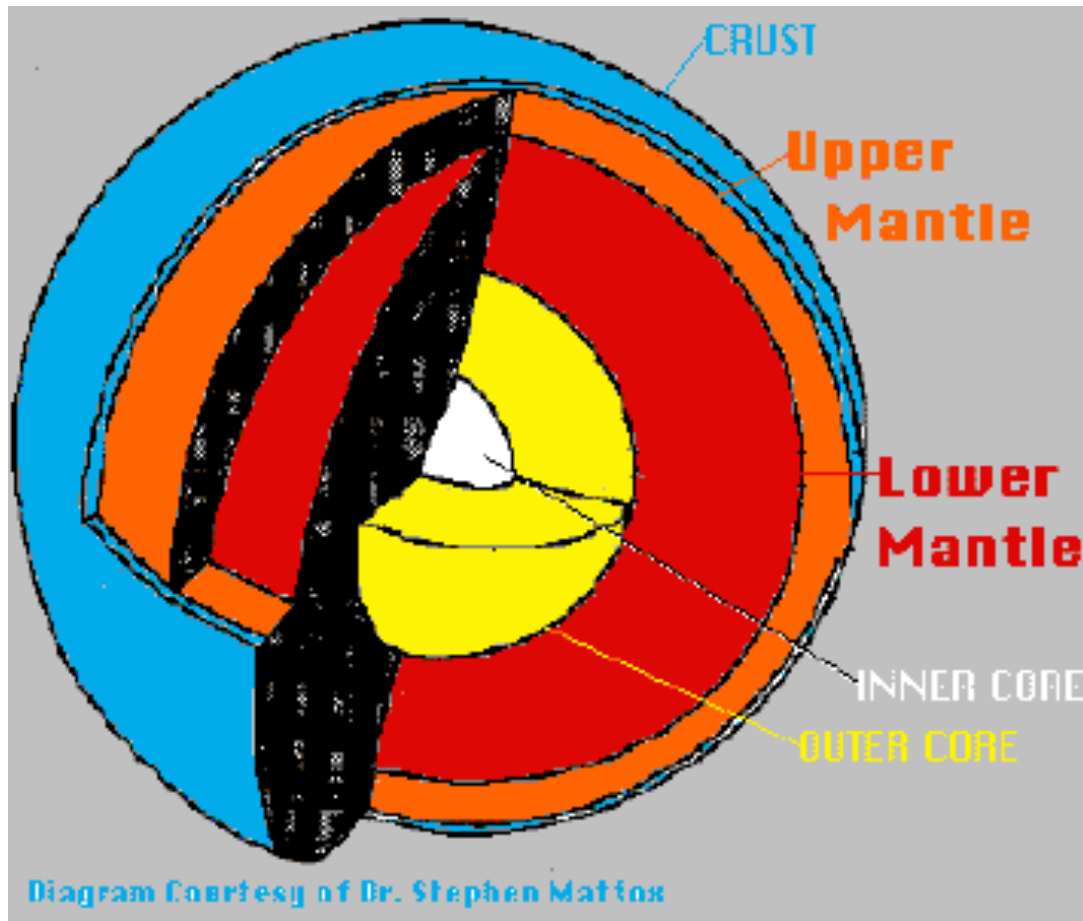


The Layers of the Earth

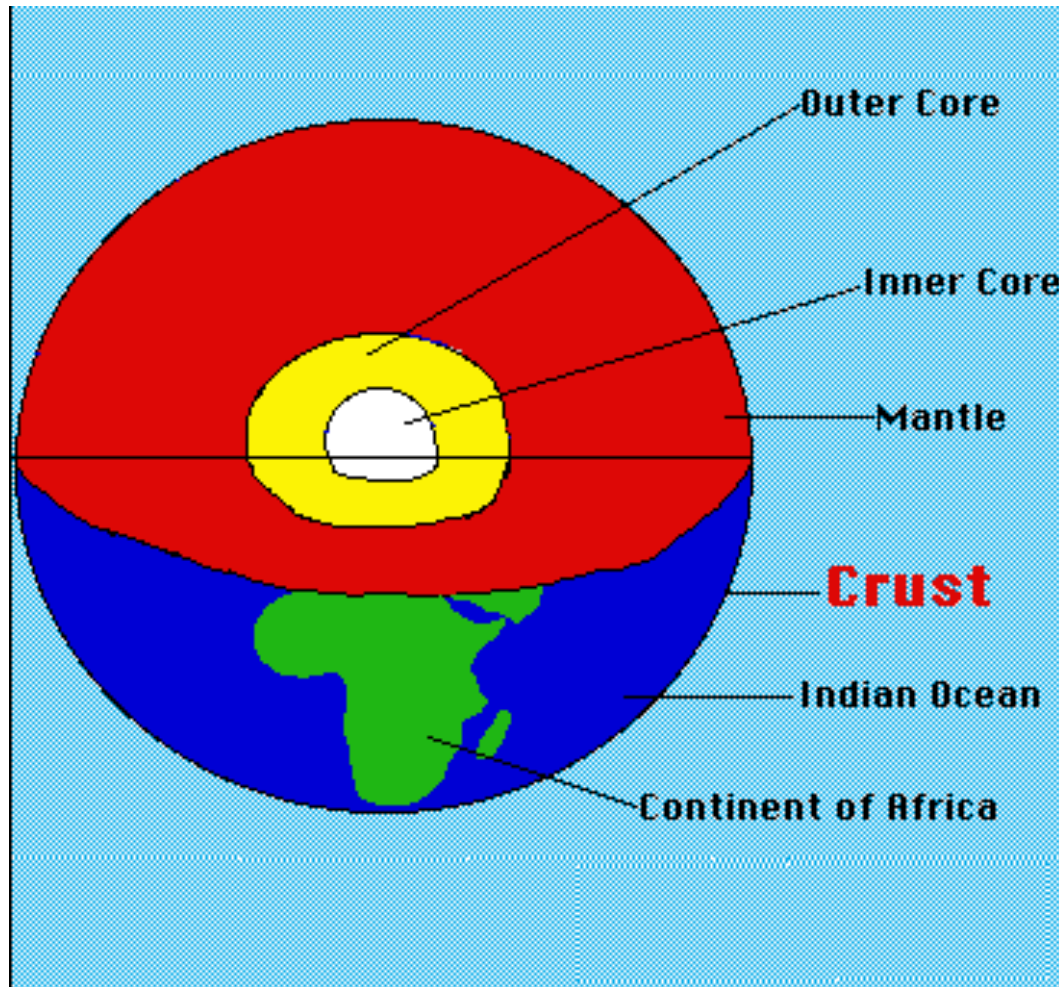


The Four Layers



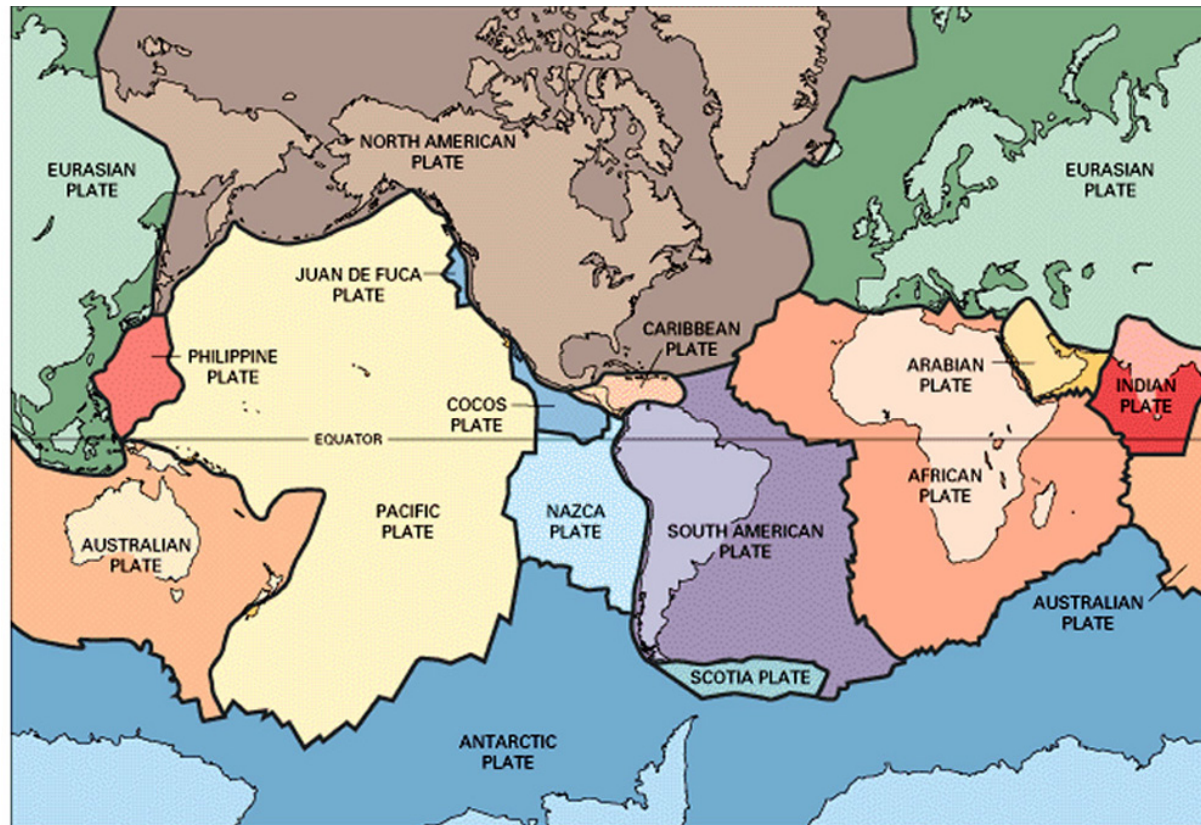
The Earth is composed of four different layers. The **crust** is the layer that you live on, and it is the most widely studied and understood. The **mantle** is much hotter and has the ability to flow. The **outer core and inner core** are even hotter with pressures so great you would be squeezed into a ball smaller than a marble if you were able to go to the center of the Earth!

The Crust



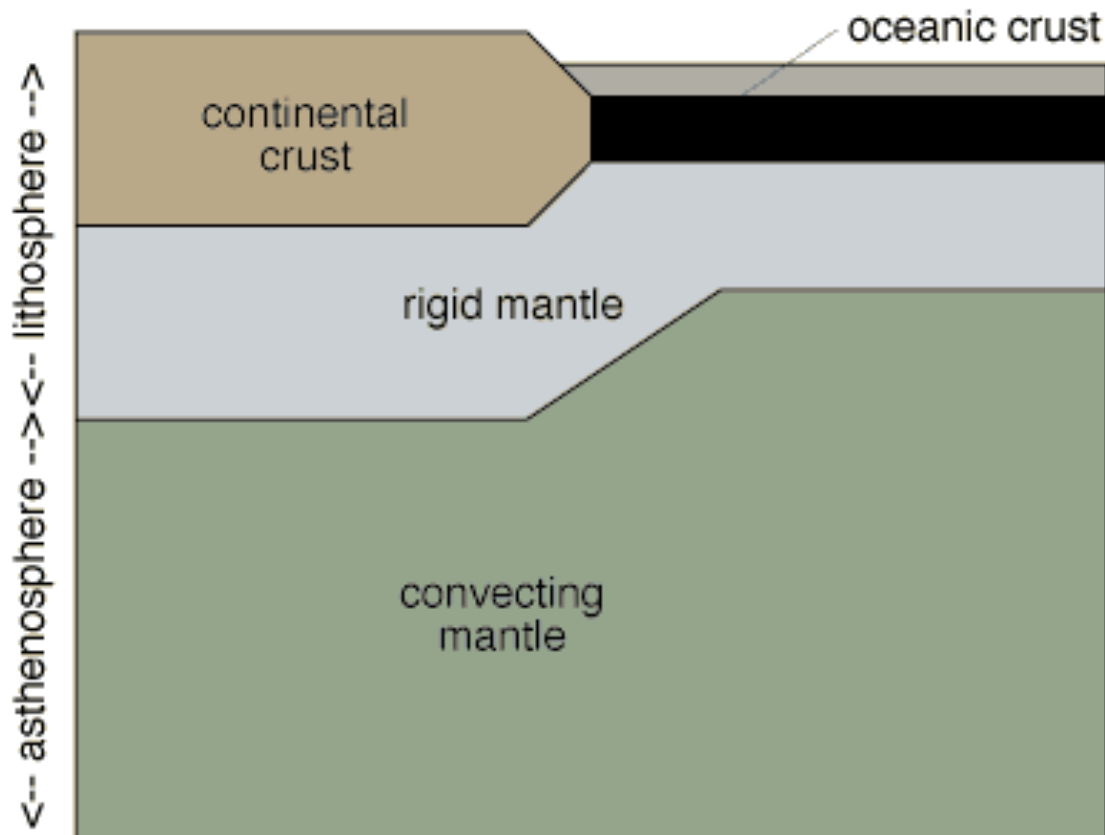
The Earth's **Crust** is like the skin of an apple. It is very thin in comparison to the other three layers. The crust is only about 3-5 miles (8 kilometers) thick under the oceans (**oceanic crust**) and about 25 miles (32 kilometers) thick under the continents (**continental crust**).

The Lithospheric Plates



The **crust** of the Earth is broken into many pieces called **plates**. The plates "float" on the soft, semi-rigid asthenosphere.

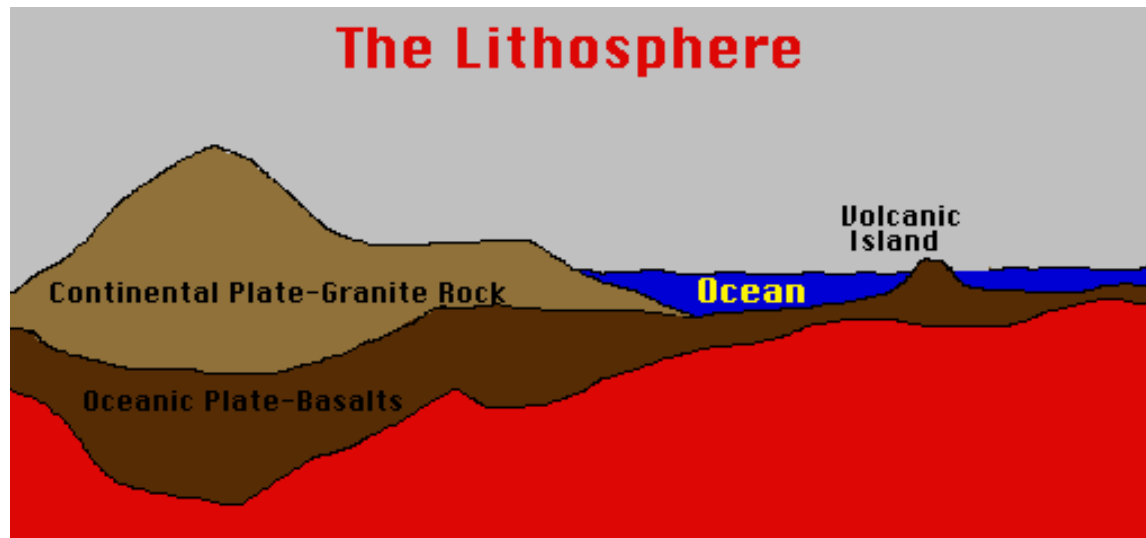
The Asthenosphere



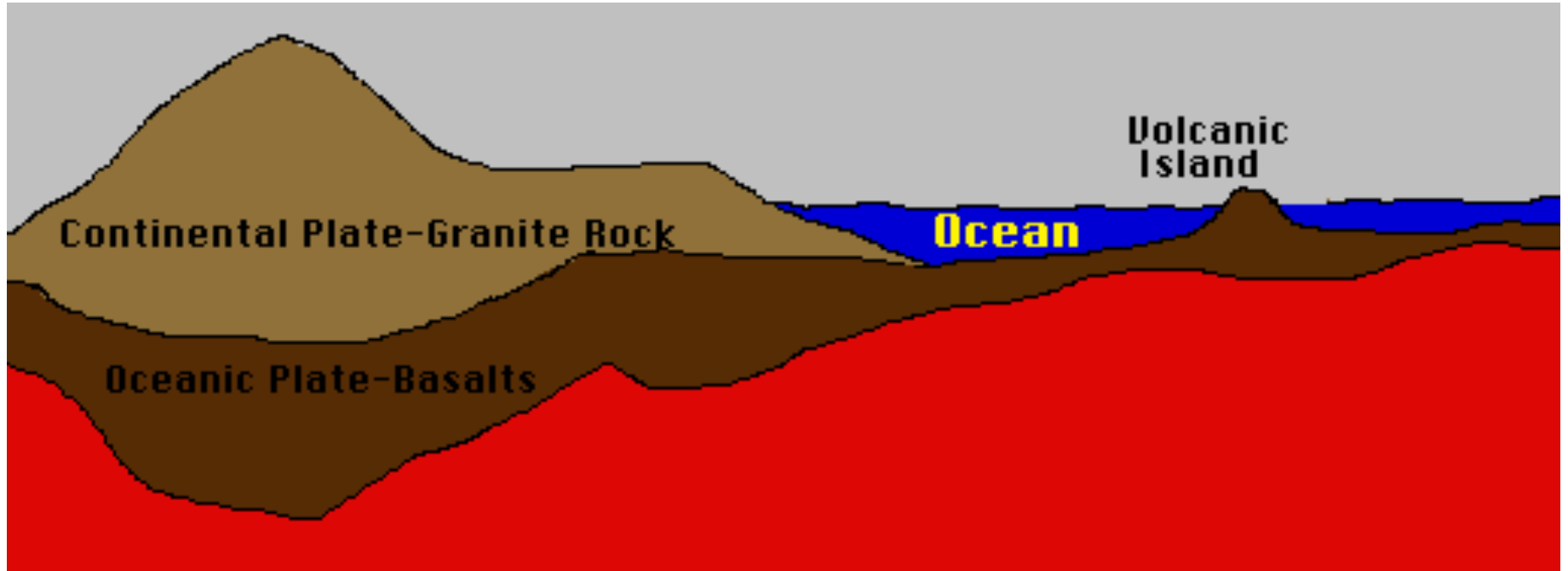
The **asthenosphere** is the semi-rigid part of the **middle mantle** that flows like hot asphalt under a heavy weight.

The Lithosphere

The **crust and the upper layer of the mantle** together make up a zone of rigid, brittle rock called the **Lithosphere**.

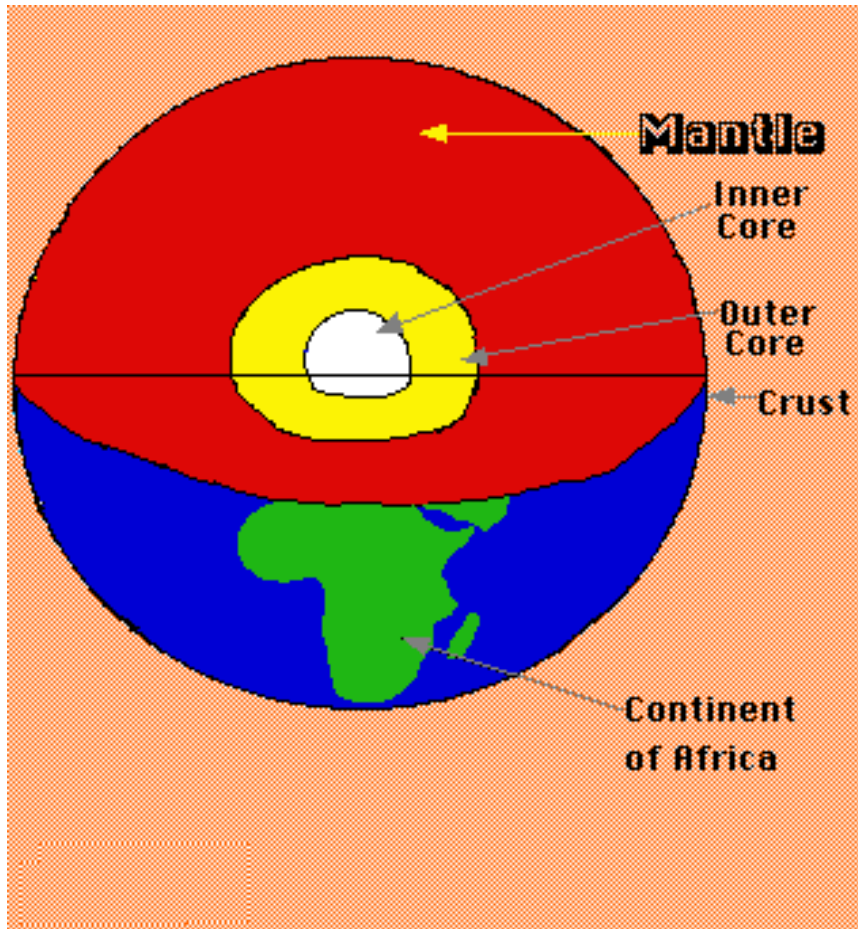


The Crust



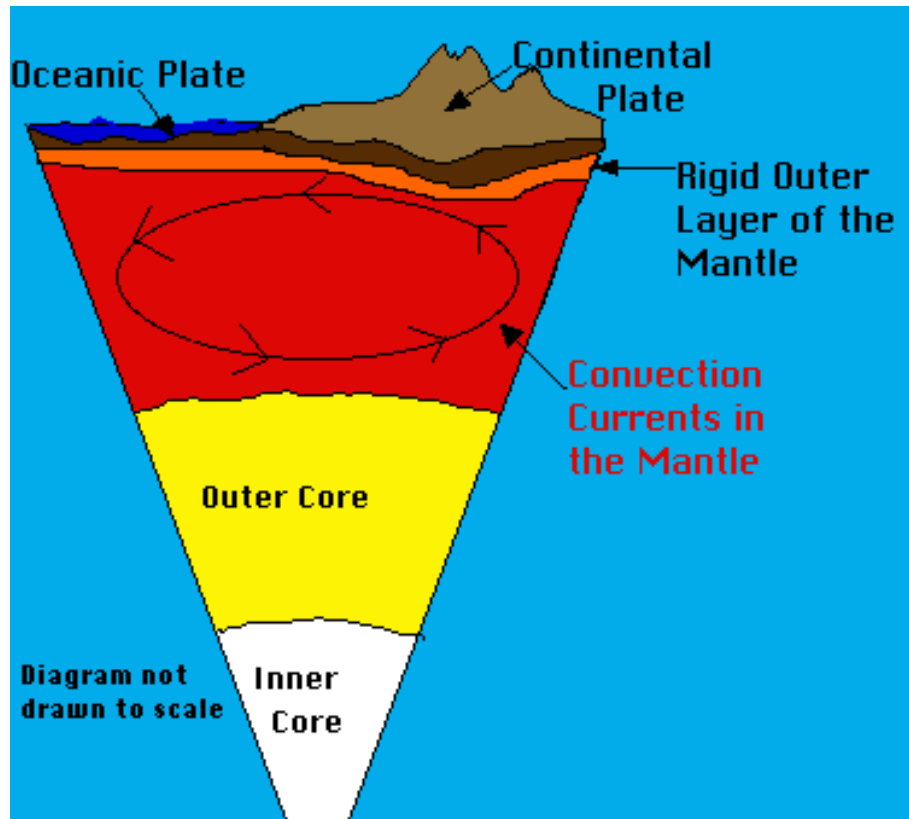
The **crust** is composed of two rocks. The **continental crust** is mostly **granite**. The **oceanic crust** is **basalt**. Basalt is much denser than the granite. Because of this the less dense continents ride on the denser oceanic plates.

The Mantle



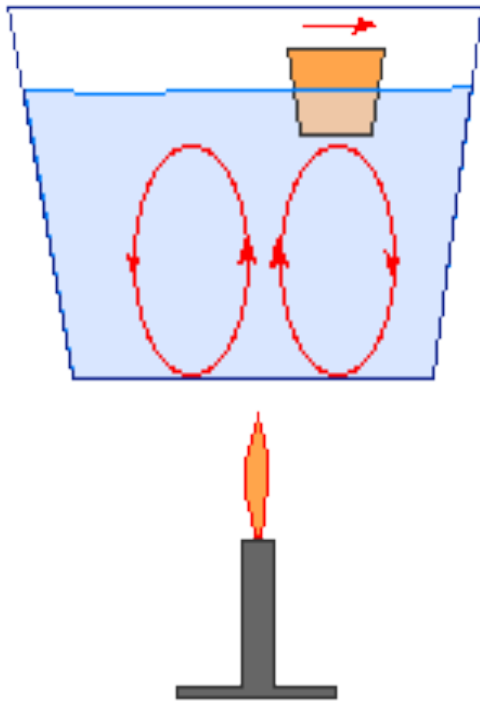
The **Mantle** is the largest layer of the Earth. The **middle mantle** is composed of very hot dense rock that flows like asphalt under a heavy weight. The movement of the middle mantle (**asthenosphere**) is the reason that the crustal plates of the Earth move.

Convection Currents



The middle mantle "flows" because of convection currents. **Convection currents** are caused by the very hot material at the deepest part of the mantle rising, then cooling and sinking again --repeating this cycle over and over.

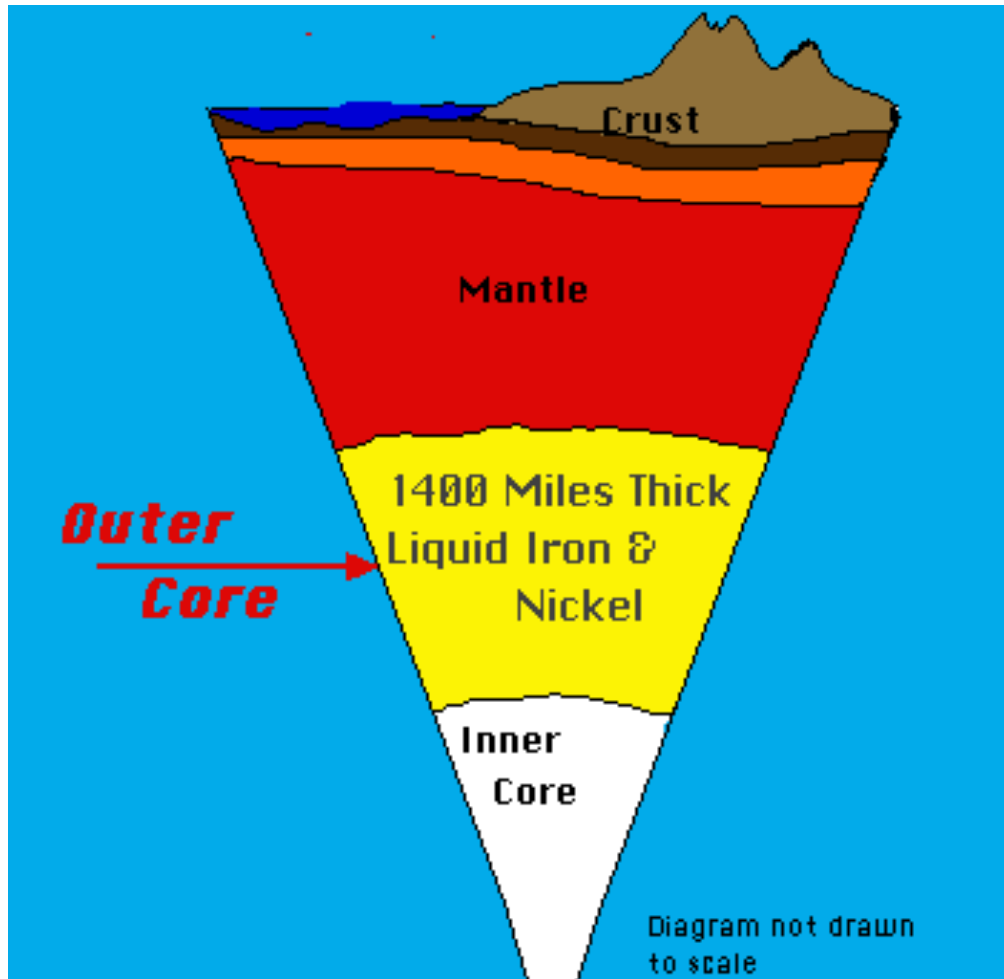
Convection Currents



The next time you heat anything like soup or water in a pan you can watch the **convection currents** move in the liquid. When the convection currents flow in the **asthenosphere** they also move the crust. The crust gets a free ride with these currents, like the **cork** in this illustration.

Safety Caution: Don't get your face too close to the boiling water!

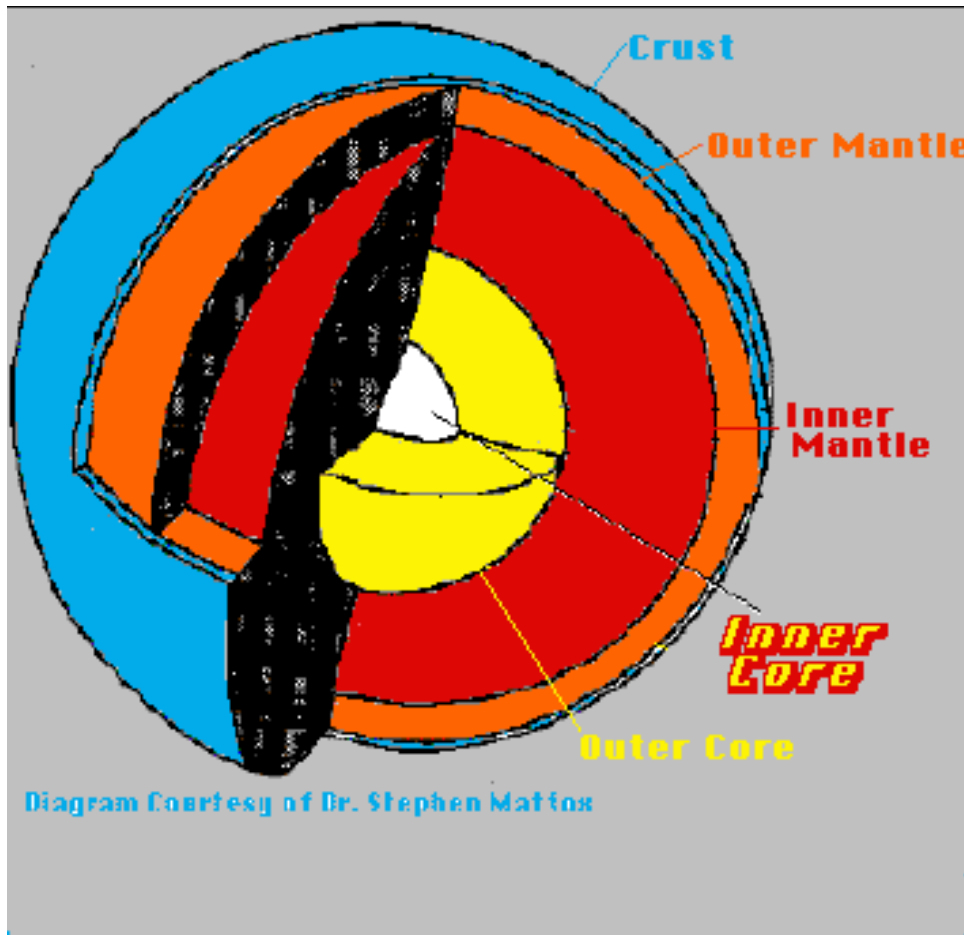
The Outer Core



The core of the Earth is like a ball of very hot metals. The

outer core is so hot that the metals in it are all in the liquid state. The outer core is composed of the melted metals of **nickel and iron**.

The Inner Core



The **inner core** of the Earth has temperatures and pressures so great that the metals are squeezed together and are not able to move about like a liquid, but are forced to vibrate in place like a **solid**.

The End

BONUS:

Find a pair or trio and answer this question:

Have we ever seen part of the Mantle? Explain.

